

May 10, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: BREMO WEEKLY PROCESS
Pace Project No.: 92296690

Dear Meagan Ormand:

Enclosed are the analytical results for sample(s) received by the laboratory on May 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc.
Mike Williams, Golder Associates Inc



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92296690001	T3-160506-1245-S3	EPA 1664B	CLW	1	PASI-C
		EPA 200.7	CKJ	1	PASI-O
		Trivalent Chromium Calculation	CKJ	1	PASI-O
		EPA 200.8	DRS	10	PASI-O
		EPA 245.1	SH1	1	PASI-A
		SM 2540D	MJP	1	PASI-A
		EPA 218.7	AEM	1	PASI-O
		EPA 350.1	AES2	1	PASI-A
		SM 4500-CI-E	AES2	1	PASI-A

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 1664B

Description: HEM, Oil and Grease

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 200.7

Description: 200.7 MET ICP

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: Trivalent Chromium Calculation

Description: Trivalent Chromium Calculation

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 245.1

Description: 245.1 Mercury

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: SM 2540D

Description: 2540D TSS, Low-Level

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 218.7

Description: Hexavalent Chromium by IC

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 218.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: EPA 350.1

Description: 350.1 Ammonia

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for EPA 350.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Method: SM 4500-Cl-E

Description: 4500 Chloride

Client: Golder_Dominion_Bremo

Date: May 10, 2016

General Information:

1 sample was analyzed for SM 4500-Cl-E. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/27521

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92296673001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1728379)
- Chloride

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Sample: T3-160506-1245-S3		Lab ID: 92296690001		Collected: 05/06/16 12:45		Received: 05/06/16 13:54		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Field Data		Analytical Method:							
Collected By	M. Ormand			1		05/06/16 12:49			
Collected Date	5/6/16			1		05/06/16 12:49			
Collected Time	12:45			1		05/06/16 12:49			
Field pH	8.1	Std. Units	0.10	1		05/06/16 12:49			
HEM, Oil and Grease		Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		05/09/16 11:09			
200.7 MET ICP		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Tot Hardness asCaCO3 (SM 2340B	94800	ug/L	3300	1	05/07/16 11:34	05/09/16 10:50			
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	ug/L	5.0	1		05/10/16 11:28	16065-83-1		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony	6.0	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7440-36-0		
Arsenic	21.9	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7440-38-2		
Cadmium	ND	ug/L	1.0	1	05/07/16 11:34	05/09/16 13:32	7440-43-9		
Copper	ND	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7440-50-8		
Lead	ND	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7439-92-1		
Nickel	ND	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7440-02-0		
Selenium	ND	ug/L	5.0	1	05/07/16 11:34	05/09/16 13:32	7782-49-2		
Silver	ND	ug/L	0.40	1	05/07/16 11:34	05/09/16 13:32	7440-22-4		
Thallium	ND	ug/L	1.0	1	05/07/16 11:34	05/09/16 13:32	7440-28-0		
Zinc	ND	ug/L	25.0	1	05/07/16 11:34	05/09/16 13:32	7440-66-6		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.10	1	05/07/16 12:20	05/07/16 15:30	7439-97-6		
2540D TSS, Low-Level		Analytical Method: SM 2540D							
Total Suspended Solids	4.9	mg/L	1.0	1		05/07/16 11:24			
Hexavalent Chromium by IC		Analytical Method: EPA 218.7							
Chromium, Hexavalent	ND	ug/L	3.0	3		05/10/16 09:23	18540-29-9		
350.1 Ammonia		Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.20	1		05/07/16 13:33	7664-41-7		
4500 Chloride		Analytical Method: SM 4500-Cl-E							
Chloride	25.2	mg/L	5.0	1		05/07/16 13:48	16887-00-6		

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch:	GCSV/24916	Analysis Method:	EPA 1664B
QC Batch Method:	EPA 1664B	Analysis Description:	1664 HEM, Oil and Grease
Associated Lab Samples:	92296690001		

METHOD BLANK: 1728717 Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	05/09/16 11:07	

LABORATORY CONTROL SAMPLE & LCSD: 1728718		1728719								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	40	35.9	38.1	90	95	78-114	6	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch: MERP/9385

Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1

Analysis Description: 245.1 Mercury

Associated Lab Samples: 92296690001

METHOD BLANK: 1728380

Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	05/07/16 15:16	

LABORATORY CONTROL SAMPLE: 1728381

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.5	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1728382 1728383

Parameter	Units	92296673001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.4	2.4	98	98	70-130	0	

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch: MPRP/30268

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 MET

Associated Lab Samples: 92296690001

METHOD BLANK: 1566192

Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3300	05/09/16 10:18	

LABORATORY CONTROL SAMPLE: 1566193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	88800	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1566194 1566195

Parameter	Units	92296673001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Tot Hardness asCaCO3 (SM 2340B	ug/L	122000	82700	82700	208000	208000	105	104	70-130	0	

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch:	MPRP/30269	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	92296690001		

METHOD BLANK: 1566196 Matrix: Water
Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	05/09/16 13:12	
Arsenic	ug/L	ND	5.0	05/09/16 13:12	
Cadmium	ug/L	ND	1.0	05/09/16 13:12	
Copper	ug/L	ND	5.0	05/09/16 13:12	
Lead	ug/L	ND	5.0	05/09/16 13:12	
Nickel	ug/L	ND	5.0	05/09/16 13:12	
Selenium	ug/L	ND	5.0	05/09/16 13:12	
Silver	ug/L	ND	0.40	05/09/16 13:12	
Thallium	ug/L	ND	1.0	05/09/16 13:12	
Zinc	ug/L	ND	25.0	05/09/16 13:12	

LABORATORY CONTROL SAMPLE: 1566197

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	50	49.8	100	85-115	
Arsenic	ug/L	50	52.3	105	85-115	
Cadmium	ug/L	5	5.1	102	85-115	
Copper	ug/L	50	52.0	104	85-115	
Lead	ug/L	50	50.7	101	85-115	
Nickel	ug/L	50	52.1	104	85-115	
Selenium	ug/L	50	54.2	108	85-115	
Silver	ug/L	5	5.1	102	85-115	
Thallium	ug/L	50	52.2	104	85-115	
Zinc	ug/L	250	271	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1566198 1566199

Parameter	Units	92296689001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony	ug/L	ND	50	50	54.5	54.0	99	98	70-130	1	
Arsenic	ug/L	19.7	50	50	70.5	70.9	102	102	70-130	1	
Cadmium	ug/L	ND	5	5	5.1	5.0	101	98	70-130	3	
Copper	ug/L	ND	50	50	51.5	52.0	101	102	70-130	1	
Lead	ug/L	ND	50	50	51.7	50.4	103	100	70-130	3	
Nickel	ug/L	ND	50	50	52.3	52.4	101	101	70-130	0	
Selenium	ug/L	ND	50	50	53.7	53.1	104	102	70-130	1	
Silver	ug/L	ND	5	5	5.0	5.1	101	101	70-130	0	
Thallium	ug/L	ND	50	50	53.1	52.0	105	103	70-130	2	

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1566198 1566199											
Parameter	Units	92296689001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Zinc	ug/L	ND	250	250	256	256	99	99	70-130	0	

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch: WET/44763

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 92296690001

METHOD BLANK: 1728369

Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	05/07/16 11:23	

LABORATORY CONTROL SAMPLE: 1728370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	244	98	90-110	

SAMPLE DUPLICATE: 1728371

Parameter	Units	92296673001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch: WETA/57609

Analysis Method: EPA 218.7

QC Batch Method: EPA 218.7

Analysis Description: Chromium, Hexavalent IC

Associated Lab Samples: 92296690001

METHOD BLANK: 1566895

Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	1.0	05/09/16 23:59	

LABORATORY CONTROL SAMPLE: 1566896

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	.066J	89	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1566897 1566898

Parameter	Units	92296673001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	ND	.075	.075	.098J	.097J	86	86	85-115	1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch: WETA/27520

Analysis Method: EPA 350.1

QC Batch Method: EPA 350.1

Analysis Description: 350.1 Ammonia

Associated Lab Samples: 92296690001

METHOD BLANK: 1728372

Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.20	05/07/16 13:25	

LABORATORY CONTROL SAMPLE: 1728373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1728374 1728375

Parameter	Units	92296689001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.2	5.1	103	102	90-110	1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

QC Batch:	WETA/27521	Analysis Method:	SM 4500-Cl-E
QC Batch Method:	SM 4500-Cl-E	Analysis Description:	4500 Chloride
Associated Lab Samples:	92296690001		

METHOD BLANK: 1728376 Matrix: Water

Associated Lab Samples: 92296690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	5.0	05/07/16 13:42	

LABORATORY CONTROL SAMPLE: 1728377

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1728378 1728379

Parameter	92296673001		MS	MSD	MS	MSD	MS	MSD	% Rec	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits		
Chloride	mg/L	71.9	20	20	89.8	89.4	90	88	90-110	0	M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-C Pace Analytical Services - Charlotte

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92296690

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92296690001	T3-160506-1245-S3		FLD/		
92296690001	T3-160506-1245-S3	EPA 1664B	GCSV/24916		
92296690001	T3-160506-1245-S3	EPA 200.7	MPRP/30268	EPA 200.7	ICP/18088
92296690001	T3-160506-1245-S3	Trivalent Chromium Calculation	ICP/18108		
92296690001	T3-160506-1245-S3	EPA 200.8	MPRP/30269	EPA 200.8	ICPM/12243
92296690001	T3-160506-1245-S3	EPA 245.1	MERP/9385	EPA 245.1	MERC/9013
92296690001	T3-160506-1245-S3	SM 2540D	WET/44763		
92296690001	T3-160506-1245-S3	EPA 218.7	WETA/57609		
92296690001	T3-160506-1245-S3	EPA 350.1	WETA/27520		
92296690001	T3-160506-1245-S3	SM 4500-CI-E	WETA/27521		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name:

Golder / Bremo

Project #:

WO# : 92296690



Courier:

☐ Commercial

☐ Fed Ex

☐ UPS

☐ USPS

☐ Client

☒ Pace

☐ Other:

Custody Seal Present?

☒ Yes

☐ No

Seals Intact?

☒ Yes

☐ No

Packing Material:

☐ Bubble Wrap

☒ Bubble Bags

☐ None

☐ Other:

Thermometer:

☒ RMD001

☐

Type of Ice:

☒ Wet

☐ Blue

☐ None

☒ Samples on ice, cooling process has begun

Correction Factor: 0.0°C

Cooler Temp Corrected (°C):

1.6

Biological Tissue Frozen?

☐ Yes

☐ No

☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

			COMMENTS:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	Note if sediment is visible in the dissolved container
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes Date/Time/ID/Analysis Matrix: <u>WW</u>			
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
(HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)			
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Samples checked for dechlorination	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted:

Date/Time:

Comments/Resolution:

Project Manager SCURF Review:

NMG

Date:

5/6/16

Project Manager SRF Review:

NMG

Date:

5/6/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: **Golder Associates**
 Address: **2108 W Laburnum Ave, Ste 200**
Richmond, VA 23227
 Email To: **Mormand@golder.com**
 Phone: **804-551-0129** Fax: **804-358-2900**
 Requested Due Date/AT: **24 HOUR**

Section B

Required Project Information:

Report To: **Mormand@golder.com**
 Copy To: **Martha_Smith@golder.com**
Ron_Difrancesco@golder.com
 Purchase Order No.:
 Project Name: **Bremo Weekly Compliance Process**
 Project Number: **1520-347.220.1200**

Section C

Invoice Information:

Attention: **Meagan Ormand**
 Company Name: **Golder Associates**
 Address: **gaipdataentry_invoices@golder.com**
 Pace Order Reference:
 Pace Project Manager:
 Pace Profile #:

REGULATORY AGENCY

NPDES ☐ GROUND WATER ☐ DRINKING WATER
 UST ☐ RCRA ☐ OTHER ☐

Page: **1** of **1**

Section D

Valid Matrix Codes

- MATRIX CODE
 DRINKING WATER DW
 WASTE WATER WW
 PRODUCT P
 SOIL/SOLID SL
 OIL OL
 WIFE WFP
 AIR AR
 OTHER OT
 TISSUE TS

SAMPLE ID

(A-Z, 0-9 / -)
 Sample IDs MUST BE UNIQUE

ITEM #																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							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ADDITIONAL COMMENTS

Analyses to be performed under Golder-Pace MSA dated 1/9/2008

RELINQUISHED BY / AFFILIATION

John Golder

DATE

5/6/16

TIME

1354

ACCEPTED BY / AFFILIATION

Meagan Ormand

DATE

5-6

TIME

13:54

SAMPLE CONDITIONS

Temp in °C
 Received on Ice (Y/N)
 Custody Sealed Cooler (Y/N)
 Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

Meagan Ormand

DATE Signed (MM/DD/YY): 5/6/16

Temp in °C
 Received on Ice (Y/N)
 Custody Sealed Cooler (Y/N)
 Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.